

Rover Radar for Surface Navigation, Hazard Detection and Negative Obstacle Avoidance, Phase I

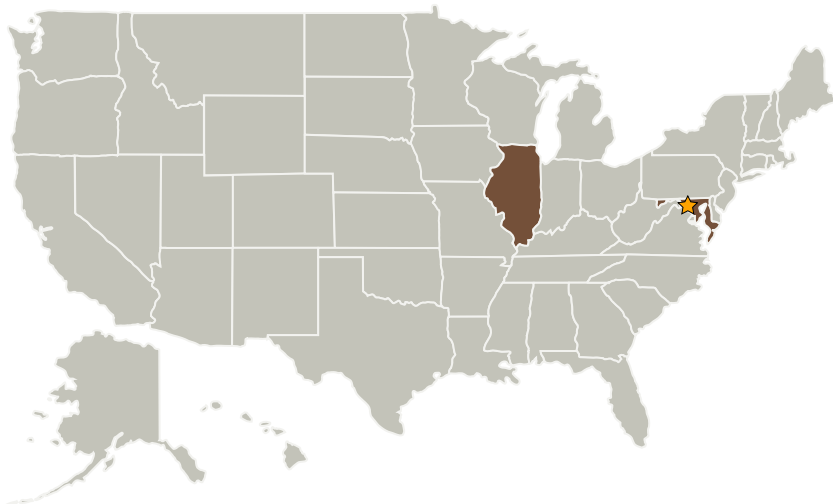
Completed Technology Project (2006 - 2006)



Project Introduction

In Topic X1.03 NASA (JPL) is seeking to extend and implement long distance exploratory surface rover missions to gain knowledge of surface topology and roughness. The benefit is to identify suitable sites for future landings of human or robotic missions and to aid in pinpoint landings. High resolution millimeter wave radar sensors provide a low cost, reliable way for a Moon or Mars Rover to detect hazards and negative obstacles (i.e. holes and drop-offs) while moving or stationary. A radar sensor is effective as a stand-alone sensor, or as a complement to the stereo vision based and laser line systems used on previous successful rover missions. The low computer overhead and inherently rapid response of a radar sensor enables a rover to rapidly traverse extremely rugged terrain without risk of falling into a hole or being otherwise trapped. The rapid traverse speed provides a wider area for collection of science data, and reduces the fraction of limited mission time spent on moving, as opposed to measurement. The overall objective of the proposed program is to develop a practical rover radar sensor for negative and positive obstacle detection.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Epsilon Lambda Electronics Corporation	Supporting Organization	Industry Small Disadvantaged Business (SDB), Veteran-Owned Small Business (VOSB)	West Chicago, Illinois

Primary U.S. Work Locations

Illinois	Maryland
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
 - └ TX16.5 Range Tracking, Surveillance, and Flight Safety Technologies